Purepower™ RX

Cable Management 450W

ATX 12V 2.2 Version

~ Super Quiet 140MM Fan ~

User's Manual

Manual

Thermaltake

COOLall YOUR LIFE

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Thermaltake Purepower™ Power Supply

1. Introduction

We live up to the promise of Thermaltake logo in our unending quest for excellence.
Shall you have any suggestion or comments, please access our web site :
http://www.thermaltake.com
or e-mail to :
thermaltake@thermaltake.com
we appreciate your kindly feedback and you will receive the prompt response from our customer service team.

Thank you for choosing a quality Thermaltake **Purepower™ RX Cable Management 450W** PC Power Supply. We trust that you will find it providing you with many years of service.

You can always find a Thermaltake **Purepower™ RX Cable Management 450W** PC Power Supply that is suitable for all of your modern PC power needs.

Please take the time in familiarize yourself with the power supply, its connectors and the contents of this manual before proceeding with the installation of the power unit. You will need a Phillips crosshead screwdriver, perhaps your PC case manual and most certainly your motherboard manual.

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2. Components Check

1. **450W** power supply unit (With one 24-pin main connector & 4-pin + 12V power connector)

2. Two sets of wires with 4-pin peripheral power connector

3. Two sets of wires with 4-pin floppy drive connector

4. One set of wire with 6-pin PCI-Express power connector

5. Two sets of wires with 5-pin SATA connectors

6. One AC Input power cord

7. 4 mounting screws

8. User manual

3. Installation

3.1 Warnings and Cautions

3.1.1 Do not pull the AC power cord when the power supply is in use or else damage to components will result.

3.1.2 Do not store the Power Supply in a high humidity and high temperature environment.

3.1.3 When using an ATX type power supply under testing conditions where the power supply unit is not installed in a PC with its components, please follow the steps below:

1)Please take a paper clip and untwist it.
2)Make sure the power supply unit is in the "OFF" position.
3)Locate the 20 or 24 pin motherboard connector from the power supply unit.
4)Plug one side of the paper clip into the green wire hole.
5)Plug the other side of the paper clip into any of the black wire holes.
6)Turn on the PSU to see if the power supply fans turn on.

3.1.4 High voltages exist in the power supply. Do not open the power supply case unless you are an authorized service technician or electrician.

3.1.5 All warrantees and guarantees shall be voided should there be a failure to comply with any of the warnings and cautions covered in this manual.

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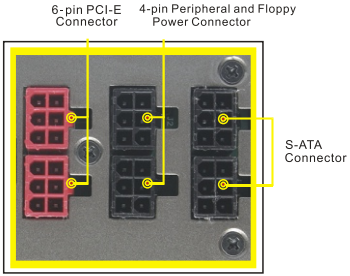
3.2 Embedded Socket and Modularized Cable Management

3.2.1 Embedded Socket and Modularized Cable Management:
The new embedded socket and modularized cable management allows user use only the cables they need and improve the airflow in the chassis.

Embedded Socket and Modularized Cable Management Design:



3.2.2 Purepower™ RX Cable Management 450W unit: On the power supply, you will find sockets to connect with those cables. Users can choose which wire set they want to use for devices, graphic card, fans, etc. Inside the package, you will find the following wire set:

1. Six 4-pin peripheral power connectors and two 4-pin floppy drive connectors
2. Four 5-pin S-ATA connectors
3. One 6-pin PCI-Express graphic card connector

Note:There are two PCI-Express sockets on the power supply, you can choose either one for your graphic card.

3.3 Installation Steps

To prevent electrical shocks, please disconnect the power cord from your existing power supply unit. Purepower RX Cable Management 450W PSU has automatic Voltage Selector Which will automatically change to 100V-240V PSU .

Installation Steps

3.3.1 Ground yourself to remove any static electricity by briefly touching your PC cases and then, disconnect the power cord from your old power supply (if replacing it)

3.3.2 Follow your computer case manual and disassemble the case.

3.3.3 Disconnect all the power connectors from the motherboard and from the peripheral devices such as case fans, hard drives, floppy drives. etc.

3.3.4 Remove the existing power supply from your computer case and replace it with your new Thermaltake **Purepower™ RX Cable Management 450W** PSU.

3.3.5 Connect the power connectors to the motherboard and peripheral devices (refer to the rest of this manual to match the various one-way key-locked connectors to the motherboard and accessories).

3.3.6 Connect the 6-pin PCI Express connector to PCI Express graphic card if you need.

Note: Please read the user manual supplied with your graphic card for detail usage instructions.

3.3.7 Close the computer case.

3.3.8 Make sure your power supply switch is on "OFF" position, and connect the supplied power cord to your Thermaltake **Purepower™ RX Cable Management 450W** PSU.

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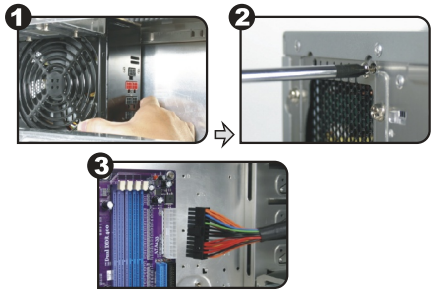
3.4 Power Supply Installation

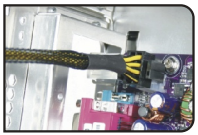
Step 1

After install the power supply unit into the chassis and then connect the 20+4-pin main power cable to motherboard 20pin or 24 pin socket.



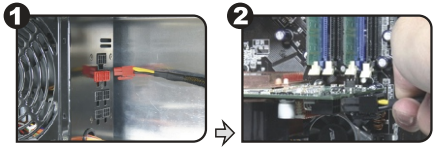
Step 2

Connect the 4-pin +12V power connector to the motherboard.



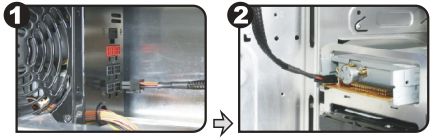
Step 3

Connect the 6-pin PCI-Express connector to your graphic card if necessary.



Step 4

Connect the 4-pin power connectors to peripherals such as DVD burners, hard disk drives, etc. In addition, users can connect the 4-pin floppy power connectors to the floppy drive.



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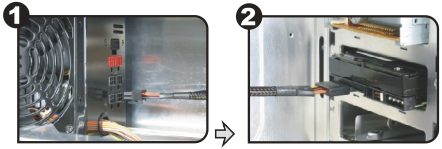
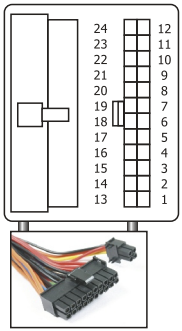
If there are S-ATA hard disk drives present, there are also Serial ATA connectors available.



4. Product Specification

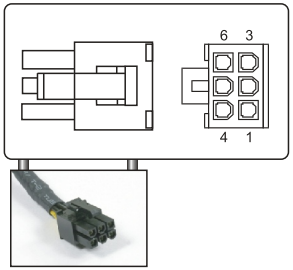
4.1 Output Specification

Main Power Connector



Voltage	Color			Color	Voltage
+3.3 V	Orange	1	13	Orange	+3.3 V
+3.3 V	Orange	2	14	Blue	-12 V
COM	Black	3	15	Black	COM
+5 V	Red	4	16	Green	PS_ON#
COM	Black	5	17	Black	COM
+5 V	Red	6	18	Black	COM
COM	Black	7	19	Black	COM
PWR_ON	Gray	8	20	N/C	N/C
+5 Vsb	Purple	9	21	Red	+5 V
+12 V_1	Yellow	10	22	Red	+5 V
+12 V_1	Yellow	11	23	Red	+5 V
+3.3 V	Orange	12	24	Black	COM

PCI Express Connector (6 pin)



Color	Signal	Pin
Yellow	+12V_1	1
Yellow	+12V_1	2
Yellow	+12V_1	3
Black	COM	4
Black	COM	5
Black	COM	6

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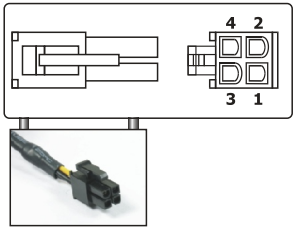
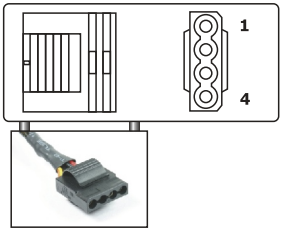
+12V connector (4 pin)



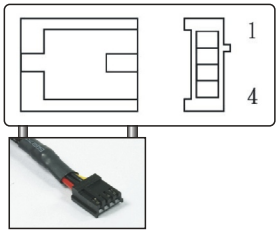
Color	Signal	Pin
Black	COM	1
Black	COM	2
Yellow/Black	+12V_2	3
Yellow/Black	+12V_2	4

Peripheral Connector (4 pin)



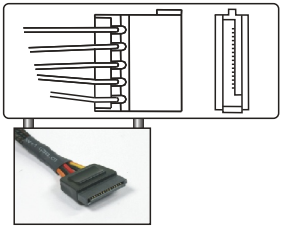
Color	Signal	Pin
Yellow	+12V_1	1
Black	COM	2
Black	COM	3
Red	+5VDC	4

Floppy Disk Connector (4 pin)



Color	Signal	Pin
Red	+5VDC	1
Black	COM	2
Black	COM	3
Yellow	+12V_1	4

Serial ATA Power Connector (5 pin)



Color	Signal	Pin
Yellow	+12V$_1$	1
Black	COM	2
Red	+5VDC	3
Black	COM	4
Orange	+3.3 VDC	5

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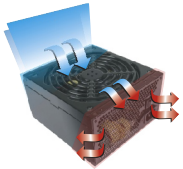
4.2 Purepower RX Cable Management 450W PSU Specification

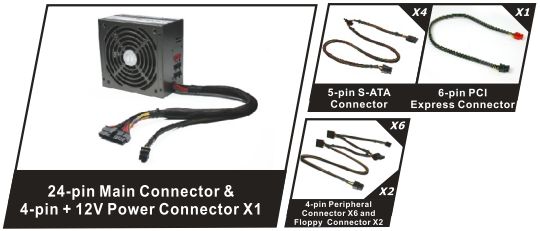
Features:

- Intel ATX 12V 2.2 Compatible.
- Compatible with latest PCI-Express and Dual Core CPU configuration.
- Dual dedicated +12V output circuitry provides stable voltage for system.
- Modularized cable management improves internal airflow.
- Universal AC input 115~230V automatically scans and detects the correct voltage for different country.
- Ultra-quiet 140mm ball bearing fan.
- Built-in Industrial-Grade Protections: Over Current, No-Load Operating, Over Voltage, and Short-Circuit.
- Safety / EMI : CE, FCC, UL, CUL, TUV, and BSMI certification

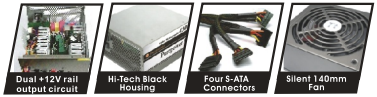
SPECIFICATION	
P/N	W0141
Maximum Power	450 Watts
Color	Hi-Tech Black
Switches	ATX Logic on-off additional power rocker switch
PFC (Power Factor Correction)	Active PFC
Cooling System	14cm Fan SPEED: 1900 RPM(+10%~-10%) DIMENSION: 140 X 140 X 25 mm AIR FLOW: 86.5 CFM BEARING TYPE : Two Ball Bearing TEMP. AUTO CONTROL
Noise	16 dBA at 1300 RPM
P. G. Delay	100-500 ms
Over Voltage Protection Recycle AC to Reset	+5V trip point < +7.0V +3.3V trip point < +4.5V +12V trip point < +15.6V
DIMENSIONS	
Unit Size	16cm(L)x15cm(W)x8.6cm(H)
Net Weight	2.20 kg
INPUT	
Input Voltage	115VAC - 230VAC
Input Frequency Range	47 - 63 Hz
Input Current	6A / 3A
Hold-up Time	16 ms
Efficiency	Typical 75%



▸ Total Output Connector



▸ Technology Features



▸ Cable Application

Intelligent Cable Management:

- All cables are sleeved with black mesh cable sleeving
- Optimum air-flow currents within the chassis

OUTPUT						
Voltage	+5V	+3.3V	+12V$_1$	+12V$_2$	−12V	+5VSB
Max. Load	28A	30A	14A	16A	0.8A	3.0A
Min. Load	0.5A	0.3A	1.0A	1.0A	0A	0A
Reak Load	-	-	15A	19A	-	3.5A
Load Reg.	+5% -5 %	+5% -5 %	+5% -5 %	+5% -5 %	+10% -10 %	+5% -5 %
Rippl & Noisee	50 mV	50 mV	120 mV	120 mV	120 mV	50 mV

4.3 Other Specification

4.3.1 Inrush Current:
55A max. when AC input 115Vac at 25°C cold start.
110A max. when AC input 230Vac at 25°C cold start.

4.3.2 Power Efficiency:
75% (min.) at full load typical and 115Vac input.

4.3.3 Power Factor:
PF>0.9

4.3.4 Note:
The continuous total output power is 450W max.
The combined power of +5V and +3.3V is 140W max.
Total combined +12V output load not exceed 30A.
Peak currents may last up to 12 seconds with not more than one occurrence per minute

4.3.5 Hold-Up Time:
16msec (minimum) at 80% of full load at 230Vac input.

4.3.6 Power Good Delay:
100-500 msec.

4.3.7 Power Fail Delay:
>1 msec.

4.3.8 Turn-On Delay Time:
2000 msec max.

4.3.9 Rise Time:
20ms max at full load.

4.4 Protection

When OCP, OVP or short protection is triggered, the main outputs will be latched off. The main outputs can be reset by cycling the DC remote on/off or AC power. +5Vsb output is auto recovery when fault condition removed.

4.4.1 Over Current Protection
Not over 240VA for every output voltage.
19A to 28A for every +12 rail.

4.4.2 No-load operating
No damage or hazardous condition should occur with all the DC output Connectors disconnected from the load. The power supply may latch into the shutdown state.

4.4.3 Over Voltage Protection
+3.3V output 4.5 Vmax
+5.0V output 7.0 Vmax
+12.0V output 15.6 Vmax

4.4.4 Short Protection
All output to GND.

4.5 Environment:

4.5.1 Operating Temp. 10°C to +50°C
4.5.2 Storage Temp. -20°C to +70°C
4.5.3 Operating Humidity 20% to 90%, non-condensing
4.5.4 Storage Humidity 5% to 95%, non-condensing
4.5.5 Operating Altitude 0 to 10,000 feet
4.5.6 Storage Altitude 0 to 50,000 feet

4.6 Hi-Pot: (Input/Output isolation)

4.6.1 Primary to Secondary
3535vdc for 3 seconds
4.6.2 Insulation Resistance
Primary to earth ground 500Vdc, 50M ohms Min.

4.7 CE Requirements

4.7.1 Conducted EMI
1. Meet FCC: Class B
2. Meet CISPR 22: Class B
3. Meet BSMI: Class B
4.7.2 Safety Standards
1. Meet CUL (UL 60950)
2. Meet TUV EN60950
3. Meet CB (IEC 950)
4. Meet CE
4.7.3 Harmonic
Meet IEC1000-3-2, Class D

4.7.4 MTBF at 25°C(demonstrated)
100k hrs minimum

5. *12V Rail Distribution*

12V Rail Distribution
(Purepower RX 400W / 450W / 500W / 550W / 600W)

Model	W0141 450W W0148 400W W0149 450W	W0142 500W W0143 550W W0150 550W	W0144 600W
24 PIN Connector	12V1	12V3	12V3
4 PIN +12V Connector	12V2	12V1	12V1
8 PIN+12V Connector	--	12V1,12V2	12V1,12V2
Peripheral & Floppy Connector	12V1	12V3	12V4
S-ATA Connector	12V1	12V3	12V4
Modular PCI-E Connector	12V1	12V2	12V2
Modular PCI-E Connector	--	12V2	12V2
Native PCI-E Connector	--	12V3	12V3

For the 500W~600W model, please follow below connector's operation instruction.

1.When you are using 8pin CPU +12V connector and only one graphic card with one PCI-E connector, please use native PCI-E connector to your card.
2.When you are using 4pin CPU +12V connector and only one graphic card with one PCI-E connector, please use modular PCI-E connector to your card.
3.When you are using 8pin CPU +12V connector and two graphic cards, please use one modular PCI-E connector and one native PCI-E connector to your cards.
4.When you are using 4pin CPU +12V connector and two graphic cards, please use one modular PCI-E connector and one native PCI-E connector to your cards.

Note: For the latest NVIDIA or ATI Graphic Card, please check our website to ensure the compatibility.

6. Trouble Shooting

Condition 1:

No DC output. The fan or fans are motionlessCheck:

1-1 Is the AC inlet plug firmly plugged into the PSU inlet socket?

1-2 Is the wall socket, extension power cord, power strip or surge protector in use, fully functional and wall power switch turned 'ON'?

1-3 Is the Main Board socket (24pin) plug fully and firmly inserted?

Condition 2:

The fan or fans began rotating and then stopped. The system hangs without proceeding any further.

Check:

2-1 Are the peripheral connectors firmly plugged into accessory devices, such as the main hard drive, CD ROM , etc?

2-2 If a plug has been inadvertently connected in an off-set or reversed position, unplug the AC power source, reconnect the offending connectors and then wait for 30 seconds before replug in the AC power source and try again.

Note:

If the power supply still cannot or is still unable to power up after following the above instruction, please send the unit back to your dealer or retailer for after sales service.

7. Cable Retail Package(Optional)

P/N:A2169 PSU Adaptor Cable
Specification

	(A)	(B)
Model	Adaptor Cable	Adaptor Cable
Dimension (mm)	193mm	198mm
Connector type	4pin - 8pin	20pin - 24pin
Cable sleeving color	Red	Black
Material	Plastic	Plastic
Weight	16 g	58 g
Voltage	12 V	3.3V,5V,+12v,-12V

(A)4pin-8pin

(B)20pin-24pin

Note

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Note